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Venture Pacific Law, PC 5201 Great America Parkway, Suite 270 Santa Clara, CA 95054			EXAMINER VIJAYAKUMAR, KALLAMBELLA M	
			ART UNIT 1793	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### DETAILED ACTION

- Applicant's amendment filed 06/03/2010 has been entered. Claims 1-2 and 5 were amended. Claims 1-20 as amended are currently pending with the application. Claims 6-20 are withdrawn over the earlier restriction as non-elected invention.
- Applicant's amendment to the specification overcomes the objection to the Abstract.

### *Claim Rejections - 35 USC § 112*

- The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) 1 and 5 contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims 1 and 5 recite the composition  $\text{Li}_a\text{Ni}_{1-b-c}\text{Co}_b\text{M}_c\text{O}_2$ ; wherein  $0.97 \leq a \leq 1.05$ ,  $0.01 \leq b \leq 0.30$ ,  $0 \leq c \leq 0.10$ . The claim further recites the limitation of the ratio of molar content of  $\text{Li}/(\text{Li}+\text{Co}+\text{M})$  between 1.01 and 1.10 in the solid solution that has not been enabled while  $\text{Li}/(\text{Ni}+\text{Co}+\text{M}) = 1$  has been enabled by the disclosure (See Pg-9, Table-2). The specification discloses the addition of components in the molar ratio  $\text{Li}/(\text{Ni}+\text{Co}+\text{M})$  between 1.01-1.10 in the process step to compensate for the loss of Li by vaporization during high temperature calcination in preparing the Li-Ni-Co-M-oxide (Spec, pg-8, Ln-17-22) and not in the final composition. Claims 2-4 are rejected as dependent upon rejected claim-1.

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- The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims 1 and 5 recite the composition  $\text{Li}_a\text{Ni}_{1-b-c}\text{Co}_b\text{M}_c\text{O}_2$ ; wherein  $0.97 \leq a \leq 1.05$ ,  $0.01 \leq b \leq 0.30$ ,  $0 \leq c \leq 0.10$ . The claim further recites the limitation of the ratio of molar content of  $\text{Li}/(\text{Li}+\text{Co}+\text{M})$  being 1.01 and 1.10 that is not possible because a factor of Li in the numerator being divided by the factor of  $\sum \text{Li}+\text{Co}+\text{M}$  can not be greater than 1 as claimed. Claims 2-4 are rejected as dependent upon rejected claim-1.

The examiner construes the ratio of  $\text{Li}/\sum \text{Ni}+\text{Co}+\text{M}$  to be between 1.01-1.10 for the reacting components based on the disclosure (Spec, Pg-8, Ln 20-22; Pg-19, Table-5 Embodiments 1-3) for the purposes of the examination.

This construing creates a situation of the broad recitation of the range of  $\text{Li}/(\text{Ni}+\text{Co}+\text{M})$  being 1.01-1.10, and the narrower range of  $a = 1.05$  (upper limit of “a”) from the elemental ranges in the composition.

### ***Claim Rejections - 35 USC § 102***

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### **Claim Interpretation:**

- *The claims 1 and 5 recite the composition  $\text{Li}_a\text{Ni}_{1-b-c}\text{Co}_b\text{M}_c\text{O}_2$ ; wherein  $0.97 \leq a \leq 1.05$ ,  $0.01 \leq b \leq 0.30$ ,  $0 \leq c \leq 0.10$ ; and when  $c=0$ , the composition contains only the metallic elements of Li, Ni and Co. i.e. M is absent and is an optional component of the composition.*

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3. Claim 1 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rougier et al (Solid. St. Ion. 1996, V90, PP 83-90).

Rougier discloses an electrode material with the composition  $\text{LiNi}_{0.9}\text{Co}_{0.1}\text{O}_2$  and its XRD pattern (Abstract; Pg 88, Fig-6; Pg-89, Cl-1, Para-2), that anticipates the elemental ratio in the claim because “[W]hen, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is anticipated’ if one of them is in the prior art.” <See MPEP 2131.03[R]>. The Intensity ratio of  $I_{003}/I_{104}$  of greater than 1.02 is anticipated from the XRD in Fig-1. With reference to the  $\text{Li}/\sum\text{Ni}+\text{Co}+\text{M}$ , the prior art composition will either be same or substantially same as that obtained by the recited elemental ratios. All the limitations of the instant claim are met.

The reference is anticipatory.

In the alternative that the disclosure by Rougier et al be insufficient to anticipate the instant claims, the instant claimed composition nonetheless would have been obvious to a person of ordinary skilled in the art over the prior art disclosure and upon calculating the intensity ratios and the cationic distribution from the XRD, and the burden is upon the applicant to prove otherwise. [MPEP 2112 [R-3-V].

Further, if the applicant insists on the recited range in the final composition, the prior art range of  $\text{Li}/\sum\text{Ni}+\text{Co}+\text{M} = 1$  in the active material lies close to the instant claimed range of 1.01-1.1 and In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art", or where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties, a prima facie case of obviousness exists. <MPEP 2144.05 [R-5]-I>.

4. Claims 1-5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over, Matsubara (US 6,045,771).

Matsubara teaches an electrode active material composition with the formula  $\text{Li}_{y-x_1}\text{Ni}_{1-x_2}\text{M}_x\text{O}_2$ ; wherein M is Co or Mn, x,  $x_1$ , and  $x_2$  represent  $0 < x \leq 0.5$ ,  $x_1 = 0$ , and  $x_2 = x$ . The compound had had an (003)/(104) plane intensity ratio of 1.2 or higher (Cl-23, Tbl-2). The secondary particles had a diameter of 5-100 micron and a primary spherical particle with a diameter of 0.2-3 micron (Cl-3, Ln 17-63). The desired secondary particle size was 5-30 micron (Cl-5, Ln 33-

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36). The compositions included  $\text{Li}_{1.03}\text{Ni}_{0.97}\text{Co}_{0.03}\text{O}_2$  (Ex-14),  $\text{LiNi}_{0.9}\text{Co}_{0.1}\text{O}_2$  (Ex-15, 20, 22),  $\text{LiNi}_{0.8}\text{Co}_{0.2}\text{O}_2$  (Ex-16, 19),  $\text{LiNi}_{0.7}\text{Co}_{0.3}\text{O}_2$  (Ex-17) that anticipates the elemental ranges in the claims. The XRD data in Fig 18 and 22, and the PSD in Fig 21 and 25 for Examples 14 and 16 respectively anticipates the intensity ratios and particle size and their ratios in claims 1-2 and 5. The prior art particles are either same or substantially same as that obtained by calcination and the formation of secondary particles by the aggregation of primary particles in claims-3 and 5 is anticipated during the heat treatment of the raw materials. The SEM data in Fig 19, 23 and 27 for Examples 14, 16 and 19 anticipates the shape in claims -4 and 5. With reference to the  $\text{Li}/\sum\text{Ni}+\text{Co}+\text{M}$  ratio, the prior art teaches adding excess Li in the composition (Cl-9, Ln 8-16; See Ex-14) and the resultant product in Ex-14 is rich in Li that is either same or substantially same as that claimed by the applicants and anticipates the instant claimed range. The discharge capacity after 100th cycle for samples 14, 16 and 19 were 157.3, 168.1 and 165.8 mAh/g (Cl-35-26, Table-6).

The reference is anticipatory.

In the alternative that the disclosure by Matsubara et al be insufficient to anticipate the instant claims, the instant claimed composition nonetheless would have been obvious to a person of ordinary skilled in the art over the prior art disclosure and upon calculating the ratios from the respective figures, and the burden is upon the applicant to prove otherwise [MPEP 2112 [R-3-V].

### ***Response to Arguments***

Applicants arguments filed 06/03/2010 have been fully considered and found not persuasive. In response to the argument, Rouger discloses a chemical formula  $\text{LiNi}_{1-y}\text{Co}_y\text{O}_2$ , it does not teach having metal (M) (Res, Pg-9, Para-1), M-is not an essential component in the composition when  $c = 0$  per the claims, and examples of Roger with  $y=0.1, 0.2, 0.3$  anticipates the instant claim-1. Referring to  $\text{Li}/(\text{Li}+\text{Co}+\text{M}) = 1.01-1.10$  has been addressed in detail the rejection of claims under 35 USC-I, 35-USC-II and 35 USC 103(a) rejections above.

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Similarly, the compositions by Matsubara anticipate the instant claims 1 and 5 for the reasons set forth under Rouger and overcome applicant's arguments about Matsubara (Pg-9, Para 2-3).

Applicant's argument that Matsubara does not teach the volume of crystalline granules (0.5-4 micron) with secondary granules (10-40 micron) being less than 10 vol% in the composition in claims-2 and 5 (Pg-10, Para-2) is not persuasive. The instant claims limitation of comprising does not exclude other particle sizes and the ratio of the instant claimed particles is anticipated by the particle size distribution charts by Matsubara (See Fig 4, 10, 15, 21, 25, 31 and 35). The XRD patterns show the crystallinity of the compositions and SEM shows their shapes. The prior art further teaches highly purified complex oxide formed in the compositions (Cl-5, Ln 36-38).

For the reasons set forth above applicants fail to patentably distinguish their composition over the prior art.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KALLAMBELLA VIJAYAKUMAR whose telephone number is (571)272-1324. The examiner can normally be reached on M-F 07-3.30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 5712721358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KMV/

August 04, 2010.

/Stanley Silverman/

Supervisory Patent Examiner, Art Unit 1793